Factors Affecting Consumers' Purchase Intention of Eco-friendly Food in China: The Evidence from Respondents in Beijing

He, Q., Duan, Y., Wang, R. & Fu, Z.

Original citation & hyperlink:
He, Q, Duan, Y, Wang, R & Fu, Z 2019, 'Factors Affecting Consumers' Purchase Intention of Eco-friendly Food in China: The Evidence from Respondents in Beijing', International Journal of Consumer Studies, vol. 43, no. 5, pp. 457-470. https://dx.doi.org/10.1111/ijcs.12525

DOI 10.1111/ijcs.12525
ISSN 1470-6423
ESSN 1470-6431

Publisher: Wiley

Citation: He, Q., Duan, Y., Wang, R., & Fu, Z. (2019). Factors affecting consumers' purchase intention of eco-friendly food in China: The evidence from respondents in Beijing. International Journal of Consumer Studies, In press.

Factors Affecting Consumers' Purchase Intention of Eco-friendly Food in China: The Evidence from Respondents in Beijing

Qile He[a], Yanqing Duan[b*], Ruowei Wang[b], Zetian Fu[c]

[a] Coventry Business School, Coventry University, Priory Street, Coventry, CV1 5FB, United Kingdom

[b] University of Bedfordshire Business School, Vicarage Street, Luton, Bedfordshire, LU1 3JU, United Kingdom

[c] China Agricultural University, Beijing, 100083, P. R. China

---

* Corresponding Author:

Professor Yanqing Duan, University of Bedfordshire Business School, Vicarage Street, Luton, Bedfordshire, LU1 3JU, UK. Email: Yanqing.Duan@beds.ac.uk; Tel: 01582743134

ABSTRACT

The purpose aims to examine the key factors influencing Chinese consumer's purchasing behaviour of eco-friendly food in China giving its context as an emerging economy and its rapidly rising importance in the world eco-friendly food market. This paper adopts and extends the Responsible Environmental Behaviour (REB) theory by empirically testing key psycho-social factors influencing the purchase intention of eco-friendly food and the moderating effects of consumers' demographic characteristics on the relationship between the key psycho-social factors and the purchase intention. A number of hypotheses are proposed. A questionnaire was designed and distributed via online survey in Beijing, China. A total of 239 valid responses were received. The empirical data was used to test the research hypotheses using the hierarchical multiple regression analysis. The research finds that the personality factors in the REB model (i.e., pro-environmental attitudes, the internal locus of control and personal responsibly) have significant positive effects on the consumers' eco-friendly food purchase intention. Such effect is stable across consumers with different income levels. On the other hand, the knowledge-skill factors in the REB model do not have significant effect on the purchase intention of consumers. This study contributes to a better understanding of factors affecting eco-friendly food consumption intention in China and the behavioural characteristics of consumers in developing countries. Moreover, the findings also shed light on the applicability of the REB theory in emerging economies and a specific industrial context.

Key words: Chinese food consumers, Eco-friendly food; Purchase intention; Responsible environmental behaviour

1. Introduction

It is widely accepted that production and consumption of eco-friendly food products will reduce the environmental impact of the food industry and contribute to the reduced use of harmful materials, energy saving, and the reduction of greenhouse gas emissions and the farmland erosion (Scialabba & Hattam, 2002). Various eco-friendly food product schemes are developed around the world to reduce the environmental impact of food production and consumption, such as the organic food schemes in the US, UK and Japan, and the Green Food scheme in China. However, since the environmental benefits are mainly realised at the upstream of the production stage, consumers may not fully appreciate the idea of eco-friendly food, hence restricted further consumption. Extent literature suggests that the wider acceptance of eco-friendly food products by consumers is a major barrier to the improvement of the environmental performance of the food industry. For this reason, researchers have attempted to understand the factors affecting consumer behaviour and sought ways to promote the higher consumption of eco-friendly food products (e.g., Honkanen, Verplanken, & Olsen, 2006; Lodorfos & Dennis, 2008; Michaelidou & Hassan, 2008; Yu, Gao, & Zeng, 2014; Zhu, Li, Geng, & Qi, 2013). Despite being relatively new to have adopted the eco-friendly food concept, emerging economies are catching up very quickly on developing schemes and promoting products of eco-friendly food. However, studies on responsible consumption of eco-friendly foods in emerging economies is still underdeveloped (Guarin & Knorringa, 2013; Yu et al., 2014; Zhu et al., 2013). Guarin and Knorringa (2013) strongly argue that while the proportion of consumers from developing countries in the global middle class will soon numerically dominate, there are limited knowledge on whether their inclination towards responsible consumption will be similar to that of middle class consumers in developed countries. Therefore, in order to gain a more relevant understanding of the responsible consumption behaviour in emerging economies, research is needed because theories, assumptions and findings from developed countries cannot be transplanted automatically to emerging economies due to culture, social and political differences (Guarin & Knorringa, 2013).

Previous studies, albeit limited to the context of developed countries, have examined the factors affecting the consumers' acceptance of eco-friendly products from various perspectives. However, only few studies examine a combination of factors, such as demographics, attitude, value, knowledge and behaviour and their impact on the consumption behaviour of consumers regarding eco-friendly food (Laroche, Bergeron, & Barbaro-Forleo, 2001; Lockie, 2004). The literature review reveals two significant knowledge gaps: Firstly, inconclusive results have been reached from different stream of studies on what drive people's responsible consumption which inhibit the application of findings to guide the further development of the industry. Secondly, there is little research on understanding the influential factors affecting consumer behaviour towards eco-friendly products in emerging economies.

To close these research gaps, this study attempts to understand the key factors influencing consumer's purchasing behaviour of eco-friendly food in China giving its context as an emerging economy and its rapidly rising importance in the world eco-friendly food market. To achieve this aim, this paper adopts and extends the Responsible Environmental Behaviour (REB) theory (Hines, Hungerford, & Tomera, 1987) by empirically testing key psycho-social factors influencing the purchase intention of eco-friendly food using the empirical evidence from Beijing, the capital city of China. This paper also examines the moderating effects of consumers' demographic characteristics on the relationship between the key psycho-social factors and the purchase intention of eco-friendly food.

This paper starts with a review of concept of eco-friendly food and related schemes in China. It also discusses the relevance of the REB theory in the currently study. This is followed by the development of hypotheses and discussion of the methods used to test the hypotheses. This is then followed by the discussion of result. This paper ends with implications and discussions of the future research.

2. Literature Review

2.1. Sustainable Consumption and Eco-friendly Food in China

Due to the growing awareness of environment protection, safe consumption and sustainable development, many countries have introduced various types of eco-friendly food certifications and schemes to balance the affordability and environmental impact of food production. In this paper, eco-friendly food refers to the food item that has been produced, manufactured, packaged, transported and consumed in a more eco-friendly way than the average food item. Most typical eco-friendly food schemes are the organic food schemes adopted by many developed countries, including US, UK, Japan, Canada and Australia. Although, different countries have different specific criteria for eco-friendly food certification, the concept of being green and reduce the use of pesticides and fertilizers are commonly integrated.

Since the concept of eco-friendly food was first introduced in China in the early 1980s, it has experienced a rapid development in recent years. The most notable growth of eco-friendly food production and consumption in China is Green Food, which is a Chinese scheme for eco-friendly food products. Therefore, the paper focuses on Green Food. Green Food basically refers to edible products produced and processed under strict supervision concerning environmental best practices and governmental regulations and production methods following agreed private and governmental standards from field to table. Green Food in China balances environment protection and the high demand of affordable food products and provides a "middle way" between chemical and organic farming (Paull, 2008), because Green Food has the advantage of providing farmers with a stepped path from chemical farming to green eco-certified farming, as well as a pathway onward to organic certification (Paull, 2008).

2.2. Gaps in the literature

Extent literature suggests that very few studies have focused on Green Food and consumers' attitudes towards Green Food (e.g., Yu et al., 2014; Zhu et al., 2013). For example, a study by Yu et

al. (2014) discusses the Chinese consumers "willingness to pay" for Green Food, without examining the actual factors influencing consumers' willingness to pay. Zhu et al. (2013) investigate the Green Food consumption behaviour, intention and influencing factors based on the theory of planned behaviour, but their study covers many factors ranging from internal to external influencing factors. Their main focus is the mediating effect of internal influencing factors and the moderating effect of context factors. The results appeared inconclusive and less clear due to the complexity of their model and the number of factors considered. Therefore, to further expand our knowledge in this important area and better facilitate the eco-friendly food industry, it is necessary to understand Chinese consumers' Green Food purchase behaviour using a more focused approach from a theoretical perspective.

2.2. Theory of Responsible Environmental Behaviour

Various theoretical perspectives have been adopted by researchers to examine the pro-environmental behaviours of individuals, such as the Theory of Planned Behaviour (TPB) (Ajzen, 1985, 1991), and Norm-Activation Model (NAM) (Schwartz, 1977). More recently, the Theory of Responsible Environmental Behaviour (REB) (Hines et al., 1987) was adopted by researchers to examine the pro-environmental behaviour of individuals.

The REB theory suggests that the pro-environmental behaviour is best viewed as a mixture of self-interest and pro-social motives, and should be examined using both TPB and NAM theories (Bamberg & Moser, 2007). The REB theory is originated from a collection of empirical studies based on meta-analysis of 128 empirical papers, which aggregated the findings of research examining pro-environmental behaviours of people (Bamberg & Moser, 2007; Hines et al., 1987). This also ensures the REB theory to have a comprehensive inclusion of the factors influencing pro-environmental behaviour rather than isolating individual factors from those variables with which they may interact (Hines et al., 1987).

According to the REB theory, the main factors influencing pro-environmental intention include knowledge-skills factors and personality factors (Hines et al., 1987). Knowledge-skills factors

include knowledge of issues, knowledge of strategies, and action skills. Personality factors include attitude, internal locus of control, and personal responsibility. According to the REB theory, before people intentionally engage in pro-environmental behaviours, they should be aware of the environmental problems. They also need to possess necessary knowledge of the appropriate course of actions to alleviate those environmental problems as well as the skills to pursue such actions. In addition to the cognitive and ability factors, people also need to have the desire to act, which arises from the positive attitudes towards the environment and action taking, the sense of obligation towards the environment, and an internal locus of control. People's intention to act environmentally is, therefore, determined by these ability and personality factors. According to Hines et al. (1987) such intention will transfer into actual behaviour when appropriate situational factors are present (such as economic constraints, social pressures, opportunities).

Since its introduction, the REB theory has exerted a strong impact on advancing research on psycho-social determinants of pro-environmental behaviour, intentions and actions (e.g., Bamberg & Moser, 2007; Corbett, 2005; Hungerford & Volk, 1990; Kaiser, Ranney, Hartig, & Bowler, 1999; McKenzie-Mohr, Nemiroff, Beers, & Desmarais, 1995). Researchers are informed by the REB theory to investigate various pro-environmental behaviours, such as environmental education (Hsu & Roth, 1998), environmental purchasing (Follows & Jobber, 2000), recycling (Schultz, Oskamp, & Mainieri, 1995), household environmental behaviour (Barr, 2003), or environmental behaviours in general (Thielking & Moore, 2001). Based on the extensive literature review, the REB theory is found to be the most suitable framework to examine the influential factors affecting consumers purchase intention of eco-friendly food.

However, the REB theory does not give enough consideration of the demographic characterises of individuals which are also considered as important factors influencing pro-environmental behaviours (e.g., Diamantopoulos, Schlegelmilch, Sinkovicsd, & Bohlen, 2003; Rimal, McWatters, Hashim, & Fletcher, 2004; Robinson & Smith, 2002). Moreover, the REB theory is mainly applied or approved in the Western context, and there is currently a paucity of empirical research examining

environmental behaviours in developing countries such as China from the REB perspective. Therefore, this study represents a new attempt to fill these gaps.

2.3. Research Model and Hypothesis

This research focuses on behavioural intention and examines factors that can influence consumers' purchase intention of eco-friendly food. Thus, the research model uses the purchase intention as the dependent variable because intention, as also predicted by the REB theory (Bamberg & Moser, 2007), is a good indication of an individual's readiness to perform a given behaviour, and is considered to be the immediate antecedent and dominant determinant of actual purchase behaviour (Lodorfos & Dennis, 2008; Morrison, 1979). In this study, intention refers to willingness of consumers to buy eco-friendly food.

Our development of the research hypotheses is based on the REB theory in consideration of the specific research context. Hence, the relevance of each factor specified in the REB theory is reviewed (refers to the REB factor in the following discussion). For example, the concept 'knowledge of strategies' which refers to people know how to buy stuff is considered not relevant because the purchase of eco-friendly food per se do not need much knowledge support. It is logical to argue that knowledge of strategies will have little impact on people's purchase intention. Therefore, the theoretical model adopted discards the factor of 'knowledge of strategies' from the knowledge and skills traits.

In this study, one of the REB factors, knowledge of issues, refers to consumers' knowledge and awareness of environmental issues and consumers' cognition about the relationship between environmental deterioration and food production and consumption. Knowledge of issues is considered as an important cognitive element of the REB theory and a prerequisite for intention and action (Hines et al., 1987). Numerous studies suggest that individuals' knowledge can impact on their attitudes (e.g., Abdul-Muhmin, 2007; Friestad & Wright, 1994; Hwang, Kim, & Jeng, 2000). It was found that the higher level of knowledge of issues will lead to favourable attitudes which in turn leads to pro-environmental actions (Cottrell, 2003; Hungerford & Volk, 1990). Similarly, the higher

level of environmental protection cognitions can positively influence an individual's attitude towards eco-friendly food products, and it could be one of the main drivers of their eco-friendly food consumption (Lockie, Lyons, Lawrence, & Mummery, 2002). Therefore,

Hypothesis 1: Consumers' knowledge of issues is positively related to their eco-friendly food purchase intention.

Another REB factor, action skills, is defined as skills for identifying and solving environmental problems or issues (Hungerford & Volk, 1990). In this study, it refers to the capabilities that consumers possess to buy eco-friendly food products. For example, it includes the ability to recognize eco-friendly food labels, understand specifications, and know where to buy eco-friendly food products. Action skills is important for an individual to apply his or her knowledge to a solution (Hines et al., 1987). Without such skills, the purchase behaviour cannot be enacted. Thus, it can be argued that actions skills serve an antecedent to purchase intentions of eco-friendly food. Therefore,

Hypothesis 2: Consumers' action skills are positively related to their eco-friendly food purchase intention.

As advocated by consumer behaviour researchers what consumers purchase and when and how they consume are likely to be influenced by personality factors (Balderjahn, 1988; Minton & Rose, 1997). Personality factors basically refer to 'characteristics of an individual that exert pervasive influence on a broad range of trait-relevant responses' (Ajzen, 1988). The REB theory suggests that there are basically three types of personality traits have impact on an individual's responsible environmental behaviour namely, attitude, internal locus of control, and personal responsibility (Hines et al., 1987). These personality traits are found to be strongly associated with the pro-environmental intention to act (Hines et al., 1987).

The REB theory (Hines et al., 1987) considers the attitudinal variables as the individual's feelings – favourable or unfavourable – with regard to particular aspects of the environment or objects related to the environment. Hungerford and Volk (1990) consider attitudes to be the value

judgements of the concern for the environment and the motivation for actively participating in environmental improvement and protection. Similarly, in this study, the concept of attitude is concerned with consumers' value judgements for the eco-friendly food consumption as well as environment protection.

The more positive the attitudes towards environment protection, the stronger the individual's intention to perform a pro-environmental behaviour (Kilbourne & Pickett, 2008; McKenzie-Mohr et al., 1995; Minton & Rose, 1997). Literature further suggests that consumers' attitude shapes their purchase intention. For example, Mainieria et al. (1997) report that consumers' environmental attitude predicts the consumers' perception of importance of safety to environment in their purchase decisions. Lodorfos and Dennis (2008) indicate that attitudes toward organic food purchase positively influence consumers' purchase intention of them. Therefore,

Hypothesis 3: Consumers' pro-environmental attitudes are positively related to their purchase intention of eco-friendly food.

Another REB factor, the internal locus of control represents an individual's belief in being reinforced for a certain behaviour (Hungerford & Volk, 1990; Rotter, 1966), and the perception of whether or not he or she has the ability to bring about change through his or her own behaviour. In previous research, scholars used different terms with respect to the locus of control, such as perceived behavioural control in the Theory of Planned Behaviour (Ajzen, 1985) and self-efficacy in Social Cognitive Theory (Bandura, 1997). Despite that similar concept of control belief is represented (Judge, Erez, Bono, & Thoresen, 2002). The locus of control can be either internal or external. People with internal locus of control believe that outcomes that accrue to them are the results of their own actions or dispositions, and people with external locus of control believe that events that befall them are due to extraneous forces and they are powerless with outcomes (Cleveland, Kalamas, & Laroche, 2005; Rotter, 1966). Since the locus of control influences the regulation of behaviour (response initiation, effort, and persistence), previous researchers use the locus of control as a main predictor of related behaviours of individual in different research contexts,

such as customer services (Bradley & Sparks, 2002), sales (Chung & Ding, 2002), work domain (Spector, 1988), and environmental behaviours (Cleveland et al., 2005; Roberts, 1996).

In this paper, the internal locus of control refers to whether consumers believe that their personal environmental behaviour, i.e. eco-friendly food purchasing, can make any impact on the natural environment. The REB theory (Hines et al., 1987) indicates that those individuals who have an internal locus of control are more likely to engage in responsible environmental behaviours than those who believe in chance or rely on external forces. Therefore,

Hypothesis 4: The internal locus of control is positively related to consumers' eco-friendly food purchase intention.

Personal responsibility, as another REB factor, is defined as a personal obligation to implement actions (Hines et al., 1987). It refers to whether people think they have certain obligations to others, society as well as the environment. Personal responsibility includes people's own sense of responsibility and the expectation for implementing actions. People who care about environmental issues are more likely to engage in appropriate environmental responsible behaviour than those without such feelings (Hines et al., 1987). Personal responsibility is related to consumers' ethics with consumers' purchase decisions being the main issue (Callen-Marchione & Ownbey, 2008). The study of Michaelidou and Hassan (2008), for example, suggests that ethical self-identity can explain consumers' intention of organic food purchasing. Thus, it can be argued that consumers with higher level of personal responsibility would be more likely to buy eco-friendly food. Therefore,

Hypothesis 5: Personal responsibility is positively related to consumers' eco-friendly food purchase intention.

2.4. Moderating Effects

Previous literature suggests that consumer behaviours can be affected by demographic characteristics (e.g., Yu et al., 2014; Zhu et al., 2013), which are largely omitted by the empirical papers inspired by the REB theory. The psycho-social factors emphasized by the REB theory although comprehensive are arguably not isolated from personal attributes of individuals in concern,

which shape the psycho-social characteristics of the individuals per se. Therefore, in this paper we intend to expand the REB theory by examining the moderating role of demographic characteristics of consumers, basically level of education and level of income, to identify whether the theoretical model based on the REB theory is consistent across different consumer groups.

Previous research finds that that consumer attitude towards eco-friendly food may be improved through education (Rimal et al., 2004). Consumers with higher level of education may have better knowledge and awareness of sustainability issues, which may facilitate their purchase intention of Green Food. Consumers with higher level of education is more likely to have better knowledge to implement their environmental skills, so that to perform better in environmental behaviour, in this case purchasing of eco-friendly food. Therefore,

Hypothesis 6a: Education levels of consumers positively moderate the relationship between knowledge of issues and consumers' eco-friendly food purchase intention.

Hypothesis 6b: Education levels of consumers positively moderate the relationship between action skills and consumers' eco-friendly food purchase intention.

As suggested by Rimal et al. (2004), the level of income could be a factor influencing the purchasing behaviour of consumers. Because the eco-friendly food normally charges a higher price premium than the conventional food, the income of consumers may potentially influence the consumers' purchasing decision. With more personal incomes consumers will have better affordability and more freedom to make pro-environmental decisions. They will also be more able to turn their positive attitude and their sense of responsibility into action. Therefore,

Hypothesis 7a: Income levels of consumers positively moderate the relationship between attitude and consumers' eco-friendly food purchase intention.

Hypothesis 7b: Income levels of consumers positively moderate the relationship between internal locus of control and consumers' eco-friendly food purchase intention.

Hypothesis 7c: Income levels of consumers positively moderate the relationship between personal responsibility and consumers' eco-friendly food purchase intention.

Overall, these hypotheses lead to the development of the conceptual model depicted in Figure 1.

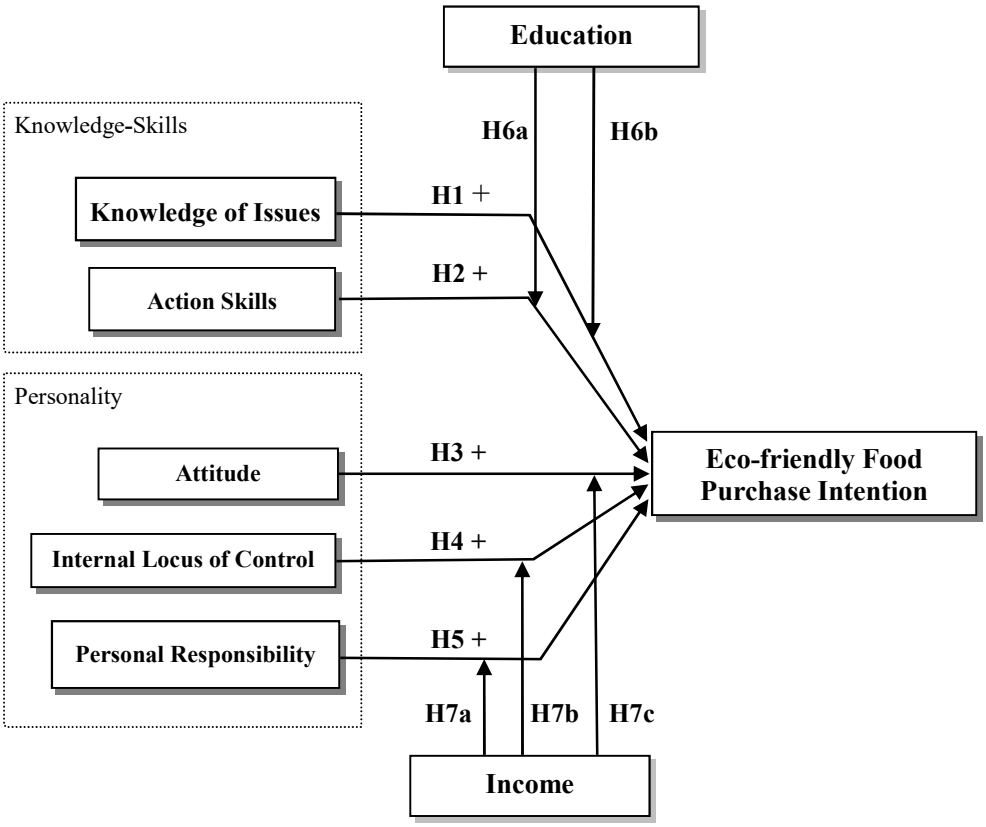

Figure 1. Theoretical model based on the REB theory

3. Research Methods

3.1 Sample and procedures

The research model was tested with Chinese consumers. However, given China's diverse economic and social conditions across different regions and between urban and rural areas, it is not our intention to provide an overall representative picture of all Chinese population. To make sure the sample has sufficient representativeness, we focus on consumers in Beijing City. Although the purchase behaviour of consumers in Beijing may not fully represent whole Chinese population, the purchase intention of Beijing consumers has the potential to represent the current trend of eco-friendly food development in China because it is one of the most developed cities in China. Similar

approach can be found in a number of influential papers (e.g., Ha & Perks, 2005; Verbeke & Viaene, 1999).

The questionnaire is distributed through an internet-based self-administered survey in Beijing, China. The internet-based survey is proved to be a cost effective and time efficient data collection method, and is adopted by many researchers to generate a higher response rate (Ha & Perks, 2005; Hewson, Yule, Laurent, & Vogel, 2003). Since the online questionnaire can be designed so that submission is allowed only when all the questions are answered, it has advantages over conventional paper based questionnaires to avoid missing values and incomplete questionnaires and duplicated submissions.

Since the Internet users in Beijing represents the fast expanding young and middle class consumers who have been regarded as the most important consumer group for responsible consumptions in a long term perspective (Guarin & Knorringa, 2013). However, to maximize representativeness of the sample, we adopted the quota sampling to ensure the final sample have enough representation of other consumer groups, such as older and lower income consumers. Quota sampling is considered as an important alternative to probability sampling given the sample frame is extraordinarily large and response rates are relatively low (Cumming, 1990; Steel, Vella, & Harrington, 1996).

The final questionnaire is uploaded into "Questionnaire Stars", a popular internet-based survey platform in China. The questionnaire is delivered in three ways, the hover button on the interface of the website, e-mail invitation through the "Questionnaire Stars" website, and hyperlinks attached to the online discussion board through most popular Chinese internet gateways. Only those residents in Beijing are invited to participate to avoid potential confounding effect of regional difference. Non-Beijing responses are screened out later in the process. Finally, a total of 239 valid responses are retained after three months of effort. The demographic characteristics of the respondents are shown in Table 1.

(Table 1 Demographic characteristics of the respondents is about here.)

3.2 Measures

Measures of Knowledge of Issues (KOI), Action Skills (AS), Attitude (ATT), Internal Locus of Control (LOC), Personal Responsibility (PR), and Purchase Intention (INT) are adopted from previous relevant literatures. 7-point Likert-type scales with end-anchors (1= strongly disagree, 7= strongly agree) are used for these items. The questionnaire also includes a cover letter introducing the content, the purpose and significance of this study. The definition of Green Food is also provided at the beginning of the questionnaire to ensure that the respondents have consistent understanding of the context of the research. In addition, the questionnaire includes demographic questions to collect respondents' information on age, gender, educational level, marital status, and income levels.

To improve the content validity of the questionnaire, three independent reviewers are asked to link the questionnaire items with the corresponding constructs. No reviewers have difficulties matching the items, providing further confidence to the content validity of the scale. Since the questionnaire is delivered in China, a Chinese version of the questionnaire is developed, and the translation-back translation process is carried out by four bilingual researchers to ensure consistencies in meaning (Eves & Cheng, 2007). Some wordings of the questionnaire are slightly modified in consideration of the cultural and language differences while maintaining the basic meanings, so that the questionnaire can be easily understood by Chinese respondents. In addition, the questionnaire is pilot tested with a group of 30 Chinese university students online and offline to evaluate the quality of the questionnaire. As a result, overabundant wordings, ambiguous questions, and duplicated questions in the original questionnaire are changed or removed. Eventually, seventeen items are retained in the final questionnaire to measure the research constructs as shown in Table 2.

(Table 2 Measurement of main constructs is about here.)

3.3 Control variables

We controlled for several variables that might be associated with purchase intention of Green Food but were not of direct interest to this study. These are age, gender and marital status (Davidson & Freudenburg, 1996; Diamantopoulos et al., 2003; Neuman, 1986).

First we control for consumer's age. There were evidences showing age being important to people's pro-environmental behaviour. For example, younger people tend to have higher levels of environmental knowledge while older people tend to undertake higher levels of green behaviour (Diamantopoulos et al., 2003). Compare to younger people, who tend to have a more dynamic lifestyle, older people arguably may take more responsible actions.

Second, we control for consumer's gender. Previous research also suggested that there are potential linkage between gender and environmental knowledge, with the large majority of authors concluding that males tend to have higher and better knowledge about green issues than females (Diamantopoulos et al., 2003). However, females have been found to exhibit both higher concern and participate more frequently in various types of green behaviour (Davidson & Freudenburg, 1996). When eco-friendly food is concerned, since female tend to be more involved with daily purchasing of food products than male, it is reasonable to see different purchasing intentions across gender groups. We measured gender as a dummy variable with numbers one stands for male and two stands for female.

Third, we control for the marital status of consumers. Married people have different pace and lifestyle compared to single people, due to economical and psychological reasons. Neuman (1986) advocates that the social influences of the spouse may play a major role in shaping an individual's environmental concern, hence cultural or lifestyle influences of marriage may affect an individual's greenness. We measured marital status as a dummy variable with numbers one stands for single and two stands for married.

4. Results

4.1. Validity and reliability

Although most measurement scales are adopted from relevant previous research, the test of validity and reliability of the measuring instruments are essential to ensure rigor and quality of the survey instrument. A test of normality was carried out with the data. First of all, a histogram was plotted and examined with normal curve fitted for all the observed variables in the model. Secondly, a test of skewness and kurtosis was performed using PRELIS software. The non-significant z-statistics of skewness or kurtosis for most indicators suggested the normality assumption for most of the indicating variables are satisfactory (Hair et al., 1998). Confirmatory Factor Analysis (CFA) is then conducted to examine the measurement model of the survey instrument (Hair, Anderson, Tatham, & Black, 1998) using LISREL 8.70.

As shown in Table 3, six latent variables are included in the measurement model. Multiple model fit indices are employed to assess the fit of the measurement model to the data (Kline, 2011). The multiple model fit indices shown in Table 3 suggest that the model has acceptable levels of fit to the data.

(Table 3 Confirmatory factor analysis of original instrument (N=239) is about here.)

To examine the convergent validity, the standardized factor loadings are examined first. Moreover, all the construct reliabilities for the corresponding constructs are above 0.7 (Fornell & Larcker, 1981). Overall, the convergent validity of the instrument is proved to be acceptable (see Table 4).

To examine the discriminant validity, the AVE for each construct is compared against the squared factor correlations between that construct and other constructs. As shown in Table 4, the squared factor correlations between each construct are all below the corresponding AVEs. Therefore, the discriminant validity of the refined instrument is also supported (Fornell & Larcker, 1981).

(Table 4 CFA analysis of survey instrument is about here.)

We assessed non-response bias statistically by comparing early and late responses for all variables using a multivariate t-test (Lehman, O'Rourke, Hatcher, & Stepanski, 2013). The statistically not significant results provided evidence that non-response bias was not present. Moreover, since the survey instruments gather the dependent variable and independent variables in one questionnaire, the common methods bias may be an issue. We have taken a number of measures to make sure common method bias is minimized. Firstly, as suggested by Podsakoff et al. (2003), all items in each of the constructs are randomized in order to reduce common method variance. Secondly, Harman's single factor test (Harman, 1967) by an exploratory factor analysis is performed with all the items, revealing the presence of five distinct factors with eigenvalues greater than 1 which account for 68.1% of the variance, and the first factor account for only 35.2% of variance. These results suggest that common method bias is not a major concern of this study (Harman, 1967). Thirdly, we followed Pavlou et al. (2007) who suggested common method variance is not problematic if no extremely high correlations exists between items. We have checked the all the correlations between items and found no high values. Therefore, we conclude that the common method bias is not an issue in this study.

4.2. Hypothesis testing

We test the research hypotheses using hierarchical multiple regression analysis. Hierarchical regression enables analysis of the proportion of variance that is shared exclusively with each additional variable (Licht, 2003). We are interested in, first, the proportion of variance of purchase intention contributed by the independent variables separate to that of the controls (age, gender, marital status). Secondly, we are interested in the proportion of variance of purchase intention contributed by the moderator variables (Education, Income), independent of that of the main and control variables.

We tested for collinearity by calculating the variance inflation factor (VIF) for each of the regression coefficients in the model. Values ranged from 1.070 to 1.961, well below the suggested cut-off threshold of 10, suggesting the limited threat of multicollinearity (Hair et al., 1998).

Table 5 shows the results of the hierarchical regression with main independent variables. Step one included control variables only. Step two included all main predictor variables, which explains significantly higher proportion of the variance of the purchase intention, $\Delta R^2 = 0.282$, $\Delta F(5, 230) = 18.776$, $p<0.001$. The significant standardized coefficients of attitude, internal locus of control, and personal responsibility, suggest that attitude, internal locus of control and personal responsibly are positively and significantly related to Green Food purchase intention. Therefore, hypotheses 3, 4, and 5 are supported. Nevertheless, hypothesis 1 and 2 are not supported, because of the insignificant standardized coefficient of knowledge of issue and action skills. Therefore, these results indicate that the personality factors in the REB model (i.e., attitude, internal locus of control, and personal responsibility) have more predictive power of the purchase intention of Green Food than those of the knowledge-skills factors (i.e., Knowledge of Issues and Action Skills).

(Table 5 OLS regression results for purchase intention of Green Food products is about here.)

Because knowledge-skills factors do not have significant relationship with Green Food purchase intention, the moderation effect of education becomes irrelevant and is thus not tested. We are therefore interested in the moderating effect of income on the relationship between personality factors and the Green Food purchase intention. A hierarchical multiple regression is conducted again. In the first step, control variables (age, gender and marital status) and knowledge-skills factors (knowledge of issues and action skills) were included. Second, personality factors and income were included. These variables accounted for a significant amount of variance in the purchase intention, $R^2 = 0.342$, $F(9, 229) = 13.216$, $p < 0.001$. To avoid potentially problematic high multicollinearity with the interaction term, the variables were mean centred and interaction terms between income and personality factors (attitude, internal locus of control, and personal responsibility) were created (Aiken & West, 1991). Next, the interaction terms between income and personality factors were

added to the regression model. As shown in table 6, the inclusion of interaction terms did not account for a significant proportion of the variance in purchase intention, $\Delta R^2 = .012$, $\Delta F(3, 226) = 1.368$, $p = .0.253$. Moreover, none of the interaction terms have significant standardized coefficient. Therefore, we conclude that income level does not moderate the relationship between personality factors and the Green Food purchase intention.

(Table 6 OLS Moderation effect regression results for purchase Intention is about here).

5. Discussion

5.1 Personality factors

The results analysis suggests that the factors in the REB theory do have effect on the Green Food purchase intention of Chinese consumers. The consumers' pro-environmental attitude (Hypothesis 3), their sense of internal locus of control (Hypothesis 4) and personal responsibility (Hypothesis 5) are the factors positively related to the purchase intention of Green Food among consumers with different income levels. Specifically, consumers who highlight the importance of environmental behaviour, and consumers who believe that personal consumption behaviour will make a difference to the natural environment will be more likely to purchase Green Food. Given that intention is the most important antecedent of the actual behaviour (Tarkiainen & Sundqvist, 2005), as was predicted by the REB theory (Bamberg & Moser, 2007), it could be argued that people who are more environmental conscious and self-dependent is more likely to consume eco-friendly food products. On the other hand, people who believe that their personal behaviour is irrelevant and having little or no impact on the natural environment will be less likely to purchase eco-friendly food.

Control belief has been examined in many studies for its relationship to behavioural intention (Bonetti & Johnston, 2008; Cote & Tansuhaj, 1989). The current study provides further support to the previous research in other contexts and suggests that the internal locus of control of consumers appear to be an important predictor of purchase intention of Green Food (Hypothesis 4).

Moreover, the social psychology literature on behaviour research has established attitudes as important predictors of behavioural intention (Armitage & Conner, 2001). Attitude, which is proved to be an important factor influencing eco-friendly food purchasing of consumers in the Western countries (Lodorfos & Dennis, 2008; Tarkiainen & Sundqvist, 2005), has also shown influence on the Green Food purchase intention of Chinese consumers (Hypothesis 3).

Similarly, Personal Responsibility also shows significant influence on the Green Food purchase intention (Hypothesis 5), and thus suggests that the purchase decision of Chinese consumers is also determined by the personal feelings of obligations to the natural environment.

The non-existence of moderating effect of income levels suggests that the positive influence of consumer attitude, internal locus of control and personal responsibility on purchase intention do not change with the level of income (Hypotheses 7a, 7b, 7c). Hence there is stable predictive power of personality factors in the REB model in relation to the Green Food purchasing in China.

5.1 Knowledge-skills factors

Compared with personality factors, the knowledge-skills factors in the REB theory do not have significant overall effects on the Green Food purchase intention of Chinese consumers. The knowledge of consumers regarding environmental protection has no influence on the purchase intention of consumers (Hypothesis 1 and Hypothesis 2). This may be due to Chinese consumers' lack of cognitive awareness of the relationship between environmental protection and eco-friendly food consumption, especially when eco-friendly consumption is currently still a new concept to Chinese consumers. Given the potential increasingly sophisticated lifestyle of Chinese consumers, they need more straightforward information on why they should buy, what to buy and where to buy. This is especially important since Green Food labelling tends to create confusion among consumers. For example, A level and AA level products (the two grading levels of Green Food) are differentiated by green letter/white letter and white background/green background, which will only be recognizable by people with professional knowledge.

The findings suggest that Chinese consumers appear to have more difficulties linking natural environment preservation to Green Food consumption, which can be one of the main restrictions for the further development of eco-friendly food consumption in China. Moreover, in an emerging economy like China, where general awareness of environment protection is relatively low, pro-environmental attitude, control belief and sense of personal responsibility of consumers are playing more significant roles than knowledge that drives the environmental purchase decision. Such finding is consistent across groups of consumers of various income levels. Given that consumers' pro-environmental attitude, control beliefs, and sense of personal responsibility can possibly be cultivated by appropriate promotions, training, and education (Hwang et al., 2000; Patch, Williams, & Tapsell, 2005), the result of the current study suggests that effective promotion and awareness raising can potentially stimulate the eco-friendly food consumption.

6. Practical implications

The insights gained in this study will be beneficial for the policy makers and marketers of eco-friendly food especially in China to develop more relevant policies and marketing strategies. Given that individuals with pro-environmental attitudes, the internal locus of control, and the sense of personal responsibility are more likely to buy eco-friendly food, policy makers and marketers should pay more attention to the cultivation of the positive attitude, control beliefs, and the sense of responsibility of consumers. The findings of this research suggest that solely educating consumers with knowledge of environment protection and eco-friendly food production does not necessarily stimulate further consumption. It is more important to turn the laid back attitude of consumers into proactive attitude and actively believing that they are capable of making changes to the environment through their own consumption behaviours.

To achieve that, an important task is for the policy makers and marketers to develop environmental conscious citizenship through adequate awareness raising initiatives and education. Given that the environmental benefits of eco-friendly food consumption are mainly realized at the

upstream of the value chain, consumers may not fully recognize such benefits directly. Government or marketers should, therefore, provide rich channels of information for consumers to understand the characteristics of eco-friendly food as well as the mechanisms of how eco-friendly food consumption play in the overall sustainable development.

7. Conclusions

7.1 Summary of the study

This paper adopts and extends the Responsible Environmental Behaviour (REB) theory by empirically testing key psycho-social factors influencing the purchase intention of eco-friendly food and the moderating effects of consumers' demographic characteristics on the relationship between the key psycho-social factors and the purchase intention. The evidence gained from this research suggests that Chinese consumers have different psycho-social characteristic from their Western counterparts towards eco-friendly food products. The eco-friendly food purchase intention is determined by consumers' positive attitude, feelings of being in control and being influential, but not by their knowledge of issues and action skills. Such finding is stable across consumers with different income levels, and thus evidences the strength of the predictive power of the personality factors in the REB theory. It is interesting to note that Chinese consumers' income level is no longer the major barrier for people to choose Green Food. This shed lights on the appropriateness of the "middle way" approach for Green Food development to compromise affordability, publicity and environmental protection.

7.2 Theoretical contribution

Very limited research has examined the effects of the psycho-social determinants on consumers' purchase intention of eco-friendly food products in the context of emerging economies. This paper

fills this gap by applying the REB theory in the context of Green Food consumption in China. This research makes a number of new contributions to advancing our knowledge and research:

Firstly, the model testing results suggest that factors affecting consumers purchase intention of the eco-friendly products in the developed countries may not be applicable to the developing countries, such as China. Among the factors suggested by the REB theory, personality factors are found to be the major predictors of eco-friendly food purchase intention among Chinese consumers. This study demonstrates that the REB theory can be highly contextualized, because the relevant factors and strength of their influence may be varied in different contexts. The contextual nature of the REB theory as indicated from the results of this study echoes the view of McKenzie-Mohr et al. (1995) that no common set of variables can be used to predict a wide range of pro-environmental activity.

Secondly, this study extents the REB theory by including and testing the potential moderating effects of income and education, so that to shed more light on the underlying personal attributes that may shape the psycho-social characteristics of consumers when purchasing decisions are made. The results reveal that income does not moderate the effects of personality factors. Since knowledge-skills factors do not have direct effect on the purpose intention of Green Food, thus the moderating effect of education levels on the relationship becomes irrelevant.

Thirdly, this research tests the applicability of the REB theory in emerging economies and calls for future research on developing more robust and comprehensive theoretical models for understanding the complex factors affecting consumers' purchase intention of eco-friendly food in the emerging economies, such as China. The findings provide empirical evidence for developing future research on the theoretical development.

7.3 Limitations

This research has limitations. The sample size is relatively small and limited to the consumers in Beijing, thus the study may suffer from a small sample bias and the results may not represent the general population in China. However, since the sample was generated from a quota sampling in

Beijing which represents one of the most important consumer groups for eco-friendly food in China, the findings of this study will still shed important light on the understanding of eco-friendly food consumption in China. Moreover, the cross-sectional survey used in this paper gives a good snapshot of Chinese consumer's eco-friendly food consumption. Despite that it does not examine how purchase intention has been built up overtime, whether previous behavioural history will affect purchase intention and how the purchase intention will lead to the actual purchase behaviour. Future researchers can carry out longitudinal research or time-series analysis using panel data to establish causal relationships between purchase intention and the actual purchase behaviour of eco-friendly food. Finally, this paper did not examine the relationship between eco-friendly food purchase intentions with the eventual environmental benefit as the result of eco-consumption behaviour. This is because the environmental benefit of the eco-friendly food consumption is mainly realized at the upstream of the food value chain, i.e., the production stage. It is difficult to directly measure the contribution of eco-friendly food consumption to the environmental performance of the food industry. Future research could examine more closely the relationship between eco-friendly food consumption and the environmental performance of the food industry through panel data analysis or archival based studies.

References

Abdul-Muhmin, A. G. (2007). Explaining consumers' willingness to be environmentally friendly. *International Journal of Consumer Studies, 31*, 237-247.

Aiken, L. S., & West, S. G. (1991). Multiple regression: Testing and interpreting interactions. Thousand Oaks, CA: Sage.

Ajzen, I. (1985). From intentions to action: A theory of planned behavior. In J. Kuhl & J. Beckman (Eds.), Action control: From cognitions to behaviors. New York: Springer.

Ajzen, I. (1988). Attitudes, personality, and behavior. Chicago, Illinois: The Dorsey Press.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179-211.

Armitage, C. J., & Conner, M. (2001). Eycacy of the theory of planned behaviour: A meta-analytic review. *British Journal of Social Psychology, 40*, 471-499.

Balderjahn, I. (1988). Personality variables and environmental attitudes as predictors of ecologically responsible consumption patterns. *Journal of Business Research, 17*(1), 51-56.

Bamberg, S., & Moser, G. (2007). Twenty years after Hines, Hungerford, and Tomera: A new meta-analysis of psycho-social determinants of pro-environmental behaviour. *Journal of*

Environmental Psychology, 27, 14-25.

Bandura, A. (1997). Self-efficacy: The exercise of control. New York: W. H. Freeman.

Barr, S. (2003). Strategies for sustainability: Citizens and responsible environmental behaviour. *Area, 35*, 227-240.

Bonetti, D., & Johnston, M. (2008). Perceived control predicting the recovery of individual-specific walking behaviours following stroke: Testing psychological models and constructs. *British Journal of Health Psychology, 13*, 463-478.

Bradley, G. L., & Sparks, B. (2002). A. Service locus of control: Its conceptualization and measurement. *Journal of Service Research, 4*, 312-324.

Callen-Marchione, K. S., & Ownbey, S. F. (2008). Associations of unethical consumer behavior and social attitudes. *Journal of Fashion Marketing and Management, 12*, 365-383.

Chung, Y. Y., & Ding, C. G. (2002). Development of the sales locus of control scale. *Journal of Occupational and Organizational Psychology, 75*(2), 233-245.

Cleveland, M., Kalamas, M., & Laroche, M. (2005). Shades of green: Linking environmental locus of control and pro-environmental behaviors. *Journal of Consumer Marketing, 22*(4), 198-212.

Corbett, J. B. (2005). Altruism, self-interest, and the reasonable person model of environmentally responsible behavior. *Science Communication, 26*(4), 368-389.

Cote, J. A., & Tansuhaj, P. S. (1989). Culture bound assumptions in behavior intention models. *Advances in Consumer Research, 16*, 105-109.

Cottrell, S. P. (2003). Influence of sociodemographics and environmental attitudes on general responsible environmental behavior among recreational boaters. *Environment and Behavior, 35*, 347-375.

Cumming, R. G. (1990). Is probability sampling always better? A comparison of results from a quota and a probability sample survey. *Public Health, 14*(2), 132-137.

Davidson, D. J., & Freudenburg, W. R. (1996). Gender and environmental risk concerns: A review and analysis of available research. *Environmental Behavior, 28*(3), 302-339.

Diamantopoulos, A., Schlegelmilch, B. B., Sinkovicsd, R. R., & Bohlen, G. M. (2003). Can socio-demographics still play a role in profiling green consumers? A review of the evidence and an empirical investigation. *Journal of Business Research, 56*(6), 465-480.

Eves, A., & Cheng, L. (2007). Cross-cultural evaluation of factors driving intention to purchase new food products-Beijing, China and south-east England. *International Journal of Consumer Studies, 31*, 410-417.

Follows, S. B., & Jobber, D. (2000). Environmentally responsible purchase behaviour: A test of a consumer model. *European Journal of Marketing, 34*(5/6), 723-746.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39-50.

Friestad, M., & Wright, P. (1994). The persuasion knowledge model: How people cope with persuasion attempts. *Journal of Consumer Research, 21*(1), 1-31.

Guarin, A., & Knorringa, P. (2013). New middle-class consumers in rising powers: Responsible consumption and private standards. *Oxford Development Studies, SSRN: https://ssrn.com/abstract=2198971 or http://dx.doi.org/10.2139/ssrn.2198971*.

Ha, H.-Y., & Perks, H. (2005). Effects of consumer perceptions of brand experience on the web: Brand familiarity, satisfaction and brand trust. *Journal of Consumer Behaviour, 4*(6), 438-452.

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). Multivariate data analysis (5th ed.). London: Prentice-Hall.

Harman, H. H. (1967). Modern factor analysis (2nd ed.). Chicago: The University of Chicago Press.

Hewson, C., Yule, P., Laurent, D., & Vogel, C. (2003). Internet research methods a practical

guide for the social and behavioural sciences. London: Sage Publications.
Hines, J. M., Hungerford, H. R., & Tomera, A. N. (1987). Analysis and synthesis of research on responsible environmental behavior: A meta-analysis. *Journal of Environmental Education, 18*(2), 1-8.
Honkanen, P., Verplanken, B., & Olsen, S. O. (2006). Ethical values and motives driving organic food choice. *Journal of Consumer Behaviour, 5*, 420-430.
Hsu, S.-J., & Roth, R. E. (1998). An assessment of environmental literacy and analysis of predictors of responsible environmental behaviour held by secondary teachers in the hualien area of taiwan. *Environmental Education Research, 4*(3).
Hungerford, H. R., & Volk, T. L. (1990). Changing learner behavior through environmental education. *Journal of Environmental Education, 21*(3), 8-21.
Hwang, Y.-H., Kim, S.-I., & Jeng, J.-M. (2000). Examining the causal relationships among selected antecedents of responsible environmental behavior. *Journal of Environmental Education, 31*, 19-25.
Judge, T. A., Erez, A., Bono, J. E., & Thoresen, C. J. (2002). Are measures of self-esteem, neuroticism, locus of control, and generalized self-efficacy indicators of a common core construct? *Journal of Personality and Social Psychology, 83*(3), 693-710.
Kaiser, F. G., Ranney, M., Hartig, T., & Bowler, P. A. (1999). Ecological behavior, environmental attitude, and feelings of responsibility for the environment. *European Psychologist, 4*(2), 59-74.
Kilbourne, W., & Pickett, G. (2008). How materialism affects environmental beliefs, concern, and environmentally responsible behavior. *Journal of Business Research, 61*(9), 885-893.
Kline, R. (2011). Principles and practices of structural equation modeling (3rd ed.). New York: The Guilford Press.
Laroche, M., Bergeron, J., & Barbaro-Forleo, G. (2001). Targeting consumers who are willing to pay more for environmentally friendly products. *Journal of Consumer Marketing, 18*(6), 503-520.
Lehman, A., O'rourke, N., Hatcher, L., & Stepanski, E. (2013). JMP for basic univariate and multivariate statistics: Methods for researchers and social scientists: SAS Institute.
Licht, M. H. (2003). Multiple regression and correlation. In I. L. G. Grimm & P. R. Yarnold (Eds.), Reading and understanding multivariate statistics. Washington, DC: American Psychological Association.
Lockie, S. (2004). Choosing organics: A path analysis of factors underlying the selection of organic food among Australian consumers. *Appetite, 2*, 135-146.
Lockie, S., Lyons, K., Lawrence, G., & Mummery, K. (2002). Eating 'green': Motivations behind organic food consumption in Australia. *Sociologia Ruralis, 42*, 23-40.
Lodorfos, G. N., & Dennis, J. (2008). Consumers' intent: In the organic food market. *Journal of food products marketing, 14*(2), 17-38.
Mainieria, T., Barnetta, E. G., Valderoa, T. R., Unipana, J. B., & Oskamp, S. (1997). Green buying: The influence of environmental concern on consumer behavior. *The Journal of Social Psychology, 137*(2), 189-204.
Mckenzie-Mohr, D., Nemiroff, L. S., Beers, L., & Desmarais, S. (1995). Determinants of responsible environmental behavior. *Journal of Social Issues, 51*(4), 139-156.
Michaelidou, N., & Hassan, L. M. (2008). The role of health consciousness, food safety concern and ethical identity on attitudes and intentions towards organic food. *International Journal of Consumer Studies, 32*, 163-170.
Minton, A. P., & Rose, R. L. (1997). The effects of environmental concern on environmentally friendly consumer behavior: An exploratory study. *Journal of Business Research, 40*(1), 37-48.

Morrison, D. G. (1979). Purchase intentions and purchase behavior. *Journal of Marketing, 43*(2), 65-74.

Neuman, K. (1986). Personal values and commitment to energy conservation. *Environment and Behavior, 18*(1), 53-74.

Patch, C. S., Williams, P. G., & Tapsell, L. (2005). Attitudes and intentions toward purchasing novel foods enriched with omega-3 fatty acids. *Journal of Nutrition Education and Behavior, 37*(5), 235-241.

Paull, J. (2008). Green food in china. *Journal of Bio-Dynamics Tasmania*(91), 48-53.

Pavlou, P. A., Liang, H., & Xue, Y. (2007). Understanding and mitigating uncertainty in online exchange relationships: A principal-agent perspective. *MIS Quarterly, 31*(1), 105-136.

Podsakoff, P. M., Mackenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879-903.

Rimal, A. P., Mcwatters, K. H., Hashim, I. B., & Fletcher, S. M. (2004). Intended vs. Actual purchase behavior for irradiated beef: A simulated supermarket setup (SSS) experiment. *Journal of food products marketing, 10*(4), 1-15.

Roberts, J. A. (1996). Green consumers in the 1990s: Profile and implications for advertising. *Journal of Business Research, 36*(3), 217-231.

Robinson, R., & Smith, C. (2002). Psychosocial and demographic variables associated with consumer intention to purchase sustainably produced foods as defined by the Midwest food alliance. *Journal of Nutrition Education and Behavior, 34*, 316-325.

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs, 80*, 1-28.

Schultz, P. W., Oskamp, S., & Mainieri, T. (1995). Who recycles and when? A review of personal and situational factors. *Journal of Environmental Psychology, 15*(2), 105-121.

Schwartz, S. H. (1977). Normative influence on altruism. In L. Berkowitz (Ed.), Advances in experimental social psychology (Vol. 10, pp. 221-279). New York: Academic Press.

Scialabba, N. E.-H., & Hattam, C. (Eds.). (2002). Organic agriculture, environment and food security. Rome: Food and Agriculture Organization of The United Nations.

Spector, P. E. (1988). Development of the work locus of control scale. *Journal of occupational psychology, 61*, 335-340.

Steel, D., Vella, J., & Harrington, P. (1996). Quality issues in telephone surveys: Coverage, non-response and quota sampling. *Australian and New Zealand Journal of Statistics, 38*(1), 15-34.

Tarkiainen, A., & Sundqvist, S. (2005). Subjective norms, attitudes and intentions of Finnish consumers in buying organic food. *British Food Journal, 107*(11), 808-822.

Thielking, M., & Moore, S. (2001). Young people and the environment: Predicting ecological behaviour. *Australian Journal of Environmental Education, 17*, 63-70.

Verbeke, W., & Viaene, J. (1999). Beliefs, attitude and behaviour towards fresh meat consumption in Belgium: Empirical evidence from a consumer survey. *Food Quality and Preference, 10*(6), 437-445.

Yu, X., Gao, Z., & Zeng, Y. (2014). Willingness to pay for the "green food" in china. *Food policy, 45*, 80-87.

Zhu, Q., Li, Y., Geng, Y., & Qi, Y. (2013). Green food consumption intention, behaviors and influencing factors among Chinese consumers. *Food Quality and Preference, 28*(1), 279-286.

Table 1 Demographic characteristics of the respondents

	Characteristics	**N**	**Percentage**
Gender	Male	106	44%
	Female	133	56%
Age of respondents	18-25	108	45%
	26-35	72	30%
	36-45	23	10%
	46-55	26	11%
	56 or above	10	4%
Education attainment	High school and lower	14	6%
	Junior college	26	11%
	Undergraduate	126	53%
	Post graduate and higher	73	30%
Income level (per month)	Lower than RMB 1,000	100	42%
	RMB 1,001-3,000	42	17%
	RMB 3,001-5,000	47	20%
	RMB 5,001 or higher	50	21%
Marital status	Single	156	65%
	Married	83	35%
Total		239	100%

Table 2 Measurement of main constructs

Constructs	**Items**	**Source**
Knowledge of Issues (KOI)	KOI 1: I am informed that the use of chemicals, pesticides and fertilizers is an important reason for the cultivated land pollution. KOI 2: I am informed that cultivated land pollution has direct negative effect on the quality and safety of food. KOI 3: I am informed that the Green Food contains fewer chemicals and generates less pollution to the farmland than conventional produce.	(Cottrell, 2003; Lockie et al., 2002)
Action Skills (AS)	AS 1: I know exactly what the label of Green Food looks like. AS 2: I know where I can buy the Green Food.	(Laroche et al., 2001; Tanner & Kast, 2003)
Attitudes (ATT)	ATT 1: It is important to me whether the food product was produced conventionally or eco-friendly. ATT 2: Environmental protection is important to me when making food purchases. ATT 3: If I can choose between eco-friendly and conventional food products, I prefer the former, because it is less polluted.	(Tanner & Kast, 2003)
Internal Locus of Control (LOC)	LOC 1: I can choose to buy Green Food when I find it regardless other people's opinion or other limits. LOC 2: It is my firm belief that my purchase behavior of food products can alleviate environmental problems. LOC 3: Quality of the environment is strongly related to my food purchase behaviour.	(Chan & Lau, 2001; Chung & Ding, 2002)
Personal Responsibility (PR)	PR 1: Everybody has the responsibility to promote eco-friendly food production by buying more such food. PR 2: I feel obligated to refrain from buying the food products which are harmful to the environment. PR 3: I personally should be responsible for degradation of the environment because of my purchasing of environmentally harmful food products.	(Chung & Ding, 2002; Tanner & Kast, 2003)
Purchase Intention (INT)	INT 1: I intend to buy Green Food products in the near future. INT 2: I would purchase Green Food products even if I have to pay more. INT 3: If I have encountered the sale of Green Food, I would consider buying some.	(Laroche et al., 2001; Tarkiainen & Sundqvist, 2005)

Table 3 Confirmatory factor analysis of original instrument (N=239)

	Constructs					
Items	ATT	LOC	PR	KOI	AS	INT
ATT1	0.80					
ATT2	0.84					
ATT3	0.62					
LOC1		0.79				
LOC2		0.77				
LOC3		0.78				
PR1			0.78			
PR2			0.77			
PR3			0.67			
KOI1				0.70		
KOI2				0.81		
KOI3				0.73		
AS1					0.81	
AS2					0.66	
INT1						0.90
INT2						0.63
INT3						0.68
	Factor Correlations					
Constructs	ATT	LOC	PR	KOI	AS	INT
ATT	1					
LOC	0.45	1				
PR	0.63	0.63	1			
KOI	0.52	0.27	0.58	1		
AS	0.38	0.27	0.43	0.41	1	
INT	0.51	0.57	0.57	0.40	0.40	1

Notes: Loadings are completely standardised. All the factor loadings are significant. Goodness of fit indices: Satorra–Bentler scaled χ^2 = 164.99, df = 104; S – B χ^2/df = 1.586; GFI = 0.91; CFI = 0.98; NNFI = 0.98; RMSEA = 0.050; SRMR = 0.057.

Table 4 CFA analysis of survey instrument

Construct	Number of items	Cronbach's alpha	Construct reliability	AVE (Ave Var Ext)	Squared Factor Correlations					
					ATT	LOC	PR	KOI	AS	INT
ATT	3	0.785	0.801	0.577	1.000					
LOC	3	0.821	0.823	0.608	0.203	1.000				
PR	3	0.782	0.785	0.550	0.397	0.397	1.000			
KOI	3	0.781	0.792	0.560	0.270	0.073	0.336	1.000		
AS	2	0.693	0.704	0.546	0.144	0.073	0.185	0.168	1.000	
INT	3	0.788	0.786	0.556	0.260	0.325	0.325	0.160	0.160	1.000

Notes: n=239. ATT=Attitude, LOC=Internal Locus of Control, PR=Personal Responsibility, KOI=Knowledge of Issue, AS=Action Skills, INT=Purchase Intention.
Construct reliability $\rho_c = (\Sigma\lambda)^2/[(\Sigma\lambda)^2+\Sigma var(\delta)]$, AVE = $\Sigma\lambda^2/[\Sigma\lambda^2+\Sigma var(\delta)]$.

Table 5 OLS regression results for purchase intention of Green Food products

Variables	Model 1	Model 2
	Purchase Intention	
	β	β
Controls		
Age	-0.063	-0.043
Gender	0.158*	0.084
Marital status	0.025	-0.051
Predictors		
Knowledge of Issues (KOI)		**0.027**
Action Skills (AS)		**0.105**
Attitude (ATT)		**0.203****
Internal Locus of Control (LOC)		**0.242*****
Personal Responsibility (PR)		**0.154***
R^2	0.027	0.309
Adjusted R^2	0.015	0.285
F	2.188	12.865***
Change in R^2	0.027	0.282
Change in F	2.188	18.776***
Notes: * p<0.05; ** p < 0.01; *** p < 0.001, n=239		

Table 6 OLS Moderation effect regression results for purchase Intention

Variables	Model 1	Model 2	Model 3
	β	β	β
Controls			
Age	-0.053	-0.108	-0.107
Gender	0.093	0.073	0.073
Marital status	-0.021	-0.085	-0.073
Knowledge of Issues (KOI)	0.210**	-0.002	-0.012
Action Skills (AS)	0.199**	0.088	0.084
Predictors			
Attitude (ATT)_C		0.210**	0.210**
Internal Locus of Control (LOC)_C		0.252***	0.269***
Personal Responsibility (PR)_C		0.183*	0.185*
Income_C		0.207**	0.199**
Income_C*ATT_C			-0.050
Income_C*LOC_C			-0.072
Income_C*PR_C			-0.017
R^2	0.131	0.342	0.354
Adjusted R^2	0.112	0.316	0.319
F	7.008***	13.216***	10.302***
Change in R^2	0.131	0.211	0.012
Change in F	7.008***	18.364***	1.368
Notes: * p<0.05; ** p < 0.01; *** p < 0.001, n=239			